

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Petroshale Energy LLC
Well Name/Number: Reese 1A
Location: NE SW SE Section 19 T14N R15E
County: Fergus, **MT;** **Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)

Long drilling time: No short, 5 to 10 days drilling time.

Unusually deep drilling (high horsepower rig): No, small single drilling rig to drill to a 3,000' TD, Otter Formation test.

Possible H₂S gas production: None anticipated.

In/near Class I air quality area: Not in a Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Small single derrick drilling rig to drill to 3,000' TD.

Water Quality

(possible concerns)

Salt/oil based mud: No, air, freshwater and freshwater mud system to be used.

High water table: No, high water table expected.

Surface drainage leads to live water: Closest drainage is Hauck Coulee, an ephemeral tributary drainages Ross Fork Creek, about 1/8 of a mile to the west from this location. Stock pond about 1/2 of a mile to the north from this location.

Water well contamination: None, closest water well is about 3/8 of a mile to the northwest, 5/8 of a mile to the southwest 7/8 of a mile to the northeast and 1.125 miles to the northwest from this location, depth of these water wells range from 20' to 2061'.

Spring is shown on the topographic map about 5/8 of a mile to the southwest from this location. Surface hole will be drilled with freshwater to 300'. Steel surface casing will be run and cemented to surface to protect ground waters. If productive 5 1/2" production casing will be run and cemented to protect surrounding deep water wells.

Porous/permeable soils: No, sandy rocky soils.

Class I stream drainage: No, Class I stream drainages nearby.

Mitigation:

☐ Lined reserve pit

☒ Adequate surface casing

- ☐ Berms/dykes, re-routed drainage
- ☐ Closed mud system
- ☐ Off-site disposal of solids/liquids (in approved facility)
- ☐ Other: _____

Comments: Adequate surface casing to be set to 300' to protect surface water and water wells.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, streams to be crossed; only crossing ephemeral drainages along the county road.

High erosion potential: No, small cut up to 1.1' and small fill up to 1.4', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, small drillsite, 200' X 200'.

Damage to improvements: Slight, surface use is abandoned hay field.

Conflict with existing land use/values: Slight

Mitigation

- ☐ Avoid improvements (topographic tolerance)
- ☐ Exception location requested
- ☒ Stockpile topsoil
- ☐ Stream Crossing Permit (other agency review)
- ☒ Reclaim unused part of wellsite if productive
- ☐ Special construction methods to enhance reclamation
- ☐ Other _____

Comments: Will utilize existing county road, Gumbo Flat Road and existing ranch roads. A short access will be built off a ranch road into this location, about 2258'.

Unlined earthen pits will be utilized for drilling. Drilling fluids, mud solids and cuttings will be allowed to dry in the pits. When pits are dry they will be filled in with subsoil and topsoil spread.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 3/8 of a mile to the northwest, about 1.125 miles to the northwest and 1.125 miles north northeast from this location.

Possibility of H₂S: None anticipated.

Size of rig/length of drilling time: Small single derrick drilling rig/Short drilling time 5 to 10 days.

Mitigation:

- ☒ Proper BOP equipment
- ☐ Topographic sound barriers
- ☐ H₂S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate amount of surface casing and operational BOP equipment should mitigate any problems.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: None

Conflict with game range/refuge management: None

Threatened or endangered Species: Threatened or endangered species identified are the Pallid Sturgeon and Black-Footed Ferret. Species of concern is the Greater Sage Grouse and Sprague's Pipit. NH tracker website lists one (1) species of concern in T14N R15E. It is the Long billed Curlew.

Mitigation:

☐ Avoidance (topographic tolerance/exception)

☒ Other agency review (DFWP, federal agencies, DSL)

☐ Screening/fencing of pits, drillsite

☐ Other: _____

Comments: Surface use is a private abandoned hay field. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified

Mitigation

☐ avoidance (topographic tolerance, location exception)

☒ other agency review (SHPO, DSL, federal agencies)

☐ Other: _____

Comments: Surface use is a private abandoned hay field. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

___ Substantial effect on tax base
___ Create demand for new governmental services
___ Population increase or relocation
Comments: No, impact expected from the drilling of this well.

Remarks or Special Concerns for this site

No special concerns about this wellsite. This is a Heath Formation test to be drilled to 3000' TD, Otter Formation test well.

Summary: Evaluation of Impacts and Cumulative effects

No significant or long term impacts expected from the drilling of this well. Some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: October 5, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC
website
(Name and Agency)
Fergus County water wells
(subject discussed)
October 5, 2011
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Fergus County
(subject discussed)

October 5, 2011
(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T14N R15E

(subject discussed)

October 5, 2011 _____
(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____